

ABSTRACT OF THE DISCLOSURE

Transmitting non-polluting dummy pilot signals in a wireless communication network permits estimation of the downlink propagation channels between a number of joint transmitters and a lesser number of receivers. With fewer receivers than

5 transmitters, loop back information from the receivers is not sufficient to determine the downlink propagation channels between the transmitters and receivers. For N transmitters and M receivers, $(N - M)$ dummy pilot symbols are transmitted to facilitate downlink channel estimation. Each dummy pilot signal is transmitted to an imagined or dummy receiver that is virtually located such that its downlink channel coefficient vector

10 is orthogonal to those of the real receivers. Transmit pre-filtering based on estimated propagation channels is applied to the information signals for the real receivers and to the dummy pilot signals. The extent to which the dummy pilot signals interfere at each receiver is an indication of mismatch between estimated and actual propagation channels.